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SCIENTIFIC COURSES FOR NURSES

BY HENRY J. GOECKEL, PHM.D., M.D.
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There seems to be a tendency on the part of some people to consider anything beyond scrubbing and cleaning, taking temperatures, etc., as not being practical education for trained nurses. With the rapid advance in diagnostic methods and the extension in other fields of medical education and practice, the demands on the nurses' ability are becoming more exacting. This has been recognized by increasing the training to three years and by demanding high school education for entrance.

In all expanding fields of educational training, there is always the danger of crowding the student with an excess of secondary matter to the detriment of training in the primary essentials. There is the tendency to take courses suitable to qualify students in other lines, and to try to use them for educational purposes for which they are entirely unsuited.

The modern education for a nurse is of a very practical nature; it is a desirable basis for many fields of human endeavor. As the hospital is essentially a community institution, it is but natural that the various lines of social service should make their impression upon the training of nurses. It becomes the duty of the training school to endeavor to qualify their product for these various fields of usefulness, as well as for its own needs. To do less, would be to fail in service to the community and to do an injustice to those who place confidence in the institutions by coming to them for training.

There are many subjects which can be taught which, while not of direct value to the duties of nursing the sick, are of considerable value to make the nurse more competent for such service and for others within the sphere of her training.

To teach anatomy and physiology without affording the student an opportunity to understand the histologic or cellular structure, and to actually see the relationship between the various organs and parts by animal or post-mortem demonstrations, is poor training. To teach materia medica, etc., by memorizing a lot of words and definitions, is a waste of time.

In giving courses in physics, chemistry and in micro-biology, we must keep in mind that we are not training chemists and biologists, but that we are using such subjects to attain greater interest and a better understanding of the other subjects essential to the students' training. Whether they are of value or not, will depend entirely upon how they are presented.

An introductory course in physics can be made of considerable value in understanding apparatus and appliances, which when taught later, would be laborious memorizing without the dynamic knowledge which this course affords. The principles of leverage can be illustrated by the use of a balance scale, in place of the classic bar and block; by a nut cracker, a potato ricer, scissors, hemostats, and the human arm; thereby connecting the drug department, the laboratory, the home, the diet kitchen, the ward, the operating room and the anatomy studied.

Expansion and contraction of gasses and vapors, pressure and vacuum can be demonstrated by the autoclave, thermos bottle, etc. A liter flask partly filled with water, heated to boiling, removed from the source of heat, tightly stoppered and then rapidly cooled, will show the effect of contraction of gas or vapor by reduction of temperature. It will demonstrate the lowering in boiling point by reducing pressure, just as the autoclave will demonstrate rise in boiling point with increased pressure. The thermometer will show expansion and contraction. The laboratory desiccator and aspirator can be used to demonstrate air pressure.

Refraction and reflection of rays can be demonstrated, first by a dish pan and the immersion of an object in water; by the plane and concave mirror (of the microscope), then lead to the principles of the optic, camera and microscope lenses, the bull's eye lens, the head reflector, etc. The prismatic spectrum can lead to the understanding of the spectroscope; all these can be used later to understand the X-rays.

Capillarity, dialysis and osmosis can be illustrated in various ways and used to explain the rising of sap in plants; the interchange of substances in body tissues, the applications to the purification of colloids (antitoxins), to explain the difference between absorbent and non-absorbent application, etc.

Inorganic chemistry can be an irrelevant hodge podge, and memorizing of valueless facts, or it can be used as the key to an understanding of the many problems underlying saline therapy, dietetics, etc.

Chemical reactions can be illustrated by explaining the different types of baking powders, etc. The chemical reactions can be used to explain the difference in potential and kinetic energy, the source of caloric energy, the energy manifested in life functions, fevers, etc.

In considering the various inorganic substances, those with which the nurse will become acquainted can be accentuated, and grouped on the basis of the periodic arrangement of elements. The aim should be to impress upon the student that there is order and system in it all, getting away from poll parrot memorizing.

Organic chemistry can be used to introduce the simpler substances; paraffines, etc., alcohols, aldehydes, ketones, acids, ethers, etc., their similarity to inorganics in structure; leading on to sugars, fats, etc.

Proteids and their derived products, their effects in producing fatigue, should be compared with materia medica substances. The similarity or dissimilarity in structure and physiologic action, should be brought forth.

The same methods can be pursued in presenting bacteriology, or rather micro-biology, correlating it with the other subjects taught. The clinical pathology phases should be brought into this course. The tests and examinations which the students are continually hearing mentioned and seeing reported, should be explained from a chemic and physiologic view.

Third year nurses who have had preliminary courses, as partly outlined above, should have the option of a course in practical laboratory work. Such a course should enable them to understand the limits of their ability as well as the extent of the same. Such a course will not make pathologists or expert technicians of them; it will make their work more interesting and will increase their ability. It will afford them the opportunity to be able intelligently to decide whether they care to go further and qualify as laboratory technicians.

With the rapid extension in the field of technical or laboratory diagnosis, the demand for technicians will no doubt increase. We believe that this field is one for which the training schools should seek to prepare their students; at least in such a manner that they can later take technician courses to advantage.

FOUR WEEKS OF INFLUENZA IN A MINING CAMP

By Mamie Ellington Thorne
Oakley, Idaho

After my discharge from the army, I married and came west to a mining camp where my husband is employed. The elevation of the mine is near nine thousand feet; it is practically a new mine, and the company has been in operation a little less than a year. We are some thirty miles from the nearest railroad station, and there is no telephone through yet. Only in good and dry weather can cars get up to these mountains, and then after a hard and steady pull up grade for many miles.